| | | | |
|---|---|---|---|
| Toxicity test passed | **1.7** | mm | ABD 0031 (Issue:F), method: AITM 3.0005 |
| Toxicity test passed | **2.0** | mm | ABD 0031 (Issue:F), method: AITM 3.0005 |
| Burning behavior test passed | **1.1** | mm | UL 94 HB |
| Burning behavior test passed | **1.2** | mm | UL 94 HB |
| Burning behavior test passed | **1.3** | mm | UL 94 HB |
| Burning behavior test passed | **1.4** | mm | UL 94 HB |
| Burning behavior test passed | **3.0** | mm | UL 94 HB |
| Burning behavior test passed | **2.0** | mm | UL 94 V-0 |
| Burning behavior test passed | **2.4** | mm | UL 94 V-0 |
| Burning behavior test passed | **3.2** | mm | UL 94 V-0 |
| Burning behavior test passed | **4.0** | mm | UL 94 V-0 |

| Other properties | dry / cond | Unit | Test Standard |
|---|---|---|---|
| Density (lasersintered) | **1060 / -** | kg/m | EOS Method |
| Powder colour (ac. to safety data sheet) | **White** | - | - |
| Colour of the components | **White** | - | - |

## Characteristics

### Processing

3D Printing, Additive Manufacturing, Laser Sintering, Rapid Prototyping

### Delivery form

Powder

### Additives

Flame retarding agent

### Special Characteristics

Flame retardant

### Features

High Crystallinity, Thermal Stability, Homopolymer

### Chemical Resistance

General Chemical Resistance, Grease Resistance, Oil Resistance

### Applications

Aircraft and Aerospace, Electrical and Electronical

e-Manufacturing Solutions

# PA 2210 FR

PA12 FR — EOS GmbH - Electro Optical Systems

## Product Texts

## Product Texts

Product information
PA 2210 FR is a polyamide 12 for processing in laser sintering systems with a halogen free, chemical flame retardant. In case of fire a carbonating coating arises on the surface of the part, isolating the plastic below.

Properties
- free of halogens
- higher stiffness compared to unfilled PA 12

Acceptance criteria
- JAR 25 (aviation)
- UL 94 (Electrical & Electronics)

Typical applications
- aviation (e.g. air ducts)
- plastic parts in devices and appliances (e.g. E&E housings)

| 3D Data | dry / cond | Unit | Test Standard |
|---|---|---|---|
| The properties of parts manufactured using additive manufacturing technology (e.g. laser sintering, stereolithography, Fused Deposition Modelling, 3D printing) are, due to their layer-by-layer production, to some extent direction dependent. This has to be considered when designing the part and defining the build orientation. | | | |
| Tensile Modulus (X Direction) | **2500 / 2400** | MPa | ISO 527-1/-2 |
| Tensile Modulus (Y Direction) | **2500 / 2400** | MPa | ISO 527-1/-2 |
| Tensile Modulus (Z Direction) | **2300 / 2200** | MPa | ISO 527-1/-2 |
| Tensile Strength (X Direction) | **46 / 43** | MPa | ISO 527-1/-2 |
| Tensile Strength (Y Direction) | **46 / 43** | MPa | ISO 527-1/-2 |
| Tensile Strength (Z Direction) | **41 / 38** | MPa | ISO 527-1/-2 |
| Strain at Tensile Strength (X Direction) | **4 / 6** | % | ISO 527-1/-2 |
| Strain at Tensile Strength (Y Direction) | **4 / 6** | % | ISO 527-1/-2 |
| Strain at Tensile Strength (Z Direction) | **3 / 4** | % | ISO 527-1/-2 |
| Strain at break (X Direction) | **4 / 7** | % | ISO 527-1/-2 |
| Strain at break (Y Direction) | **4 / 7** | % | ISO 527-1/-2 |
| Strain at break (Z Direction) | **3 / 4** | % | ISO 527-1/-2 |
| Flexural Modulus (23°C, X Direction) | **2300 / -** | MPa | ISO 178 |
| Flexural Strength (X Direction) | **65 / -** | MPa | ISO 178 |

| Thermal properties | dry / cond | Unit | Test Standard |
|---|---|---|---|
| Melting temperature (20°C/min) | **185 / *** | °C | ISO 11357-1/-3 |
| Flammability test passed | **1.7** | mm | CS 25 / JAR25 / FAR 25 § 25-853 12s Ignition Time |
| Flammability test passed | **2.0** | mm | CS 25 / JAR25 / FAR 25 § 25-853 12s Ignition Time |
| Smoke Density test passed | **1.7** | mm | ABD 0031 (Issue:F), method: AITM 2.0007 |
| Smoke Density test passed | **2.0** | mm | ABD 0031 (Issue:F), method: AITM 2.0007 |